REMARKS

The specification and claims 7, 11, and 15 are objected to due to informalities. Claims 1, 2, 5, 6, 9, and 10 are rejected under 35 USC §102(e) as being anticipated by Benmohamed et al. (US Patent No. 6,795,399). Claims 13 and 14 are rejected under 35 USC §103(a) as being unpatentable over Benmohamed as applied to claims 1, 2, 5, 6, 9, and 10 above, in view of Debey (US Patent No. 6,519,693). Claims 3, 4, 7, 8, 11, 12, 15, and 16 are objected to as being dependent on a rejected base claim, but otherwise allowable if rewritten into an independent form that includes all of the features of the base claim and any intervening claims.

By way of this amendment, the specification and claims 1-16 are amended to improve form. Claims 1-16 remain pending. No new matter is added by way of this amendment.

Objections

The Examiner objects to page 2, line 8; page 3, line 18; page 3, line 19, and page 16, line 23 due to informalities. Applicant has amended the paragraphs of the specification that contain the above informalities. Withdrawal of the objection to the specification is respectfully requested.

The Examiner objects to claims 7, 11, and 15 due to informalities. Applicant has amended claims 7, 11, and 15 to address the informalities. Withdrawal of the objection to claims 7, 11, and 15 is respectfully.

The Examiner objects to claims 3, 4, 7, 8, 11, 12, 15, and 16 as being dependent on a rejected base claim, but otherwise allowable if rewritten into an independent form that includes all of the features of the base claim and any intervening claims. Applicant acknowledges with

gratitude the indication that claims 3, 4, 7, 8, 11, 12, 15, and 16 contain allowable subject matter.

35 USC §102 Rejections

Claims 1, 2, 5, 6, 9, and 10 stand rejected under 35 USC §102(e) as allegedly anticipated

by Benmohamed. Applicant respectfully traverses this rejection.

A proper rejection under 35 USC §102 requires that a single reference teach each and

every aspect of the claimed invention either explicitly or impliedly. Any feature not directly

taught must be inherently present. See M.P.E.P. §2131. Benmohamed does not disclose or

suggest each and every feature recited in claims 1, 2, 5, 6, 9, and 10.

For example, claim 1 is directed to a communication network designing circuit for

multiple point communication service for permitting arbitrary communication within a

predetermined range by providing traffic flowing in from an ingress node through which data

flows in from an other network and traffic flowing out from an egress node through which data is

fed to the other network, where the circuit includes setting means for setting a mathematical

programming problem for deriving the multiple point communication service to permit arbitrary

communication within the predetermined range; and optimizing means for solving the

mathematical programming problem set by the setting means and obtaining a path for the

multiple point communication service. Benmohamed does not disclose or suggest at least one of

these features.

Benmohamed does not disclose or suggest, for example, a setting means for setting a

mathematical programming problem for deriving the multiple point communication service to

permit arbitrary communication within the predetermined range, as required by claim 1. The

Examiner alleges that Benmohamed discloses the above feature at Figure 1, Figure 2, col. 5,

lines 12-23 and col. 7, lines 30-35 (Office Action, page 4). Applicant disagrees.

Figures 1 and 2 disclose functional processors associated with an IP network design

system and a general design algorithm, respectively. Contrary to the Examiner's interpretation,

Figures 1 and 2 do not disclose or suggest a setting means for setting a mathematical

programming problem for deriving the multiple point communication service to permit arbitrary

communication within the predetermined range, as required by claim 1.

Col. 5, lines 12-23, of Benmohamed, recites:

> Referring to FIG. 2, one embodiment of a general design algorithm 200 of the system
> proceeds as follows. First, the traffic mix F_1 at each link is computed (by routing
> processor 12) based on an initial network topology G_s (from optimization processor 18)
> which is a subgraph of G, the routing algorithm R, the link metric vector l, and the set of
> IP demands F (step 202). Second, the capacity of each link required to satisfy the
> bandwidth demands in F_1 is computed (by link capacity requirements processors 14 and
> 16) based on the type(s) of routers in the network, the different assumptions on
> congestion scenario, and in some cases the end-to-end delays of the TCP demands (step
> 204).

This portion of Benmohamed discloses computing a traffic matrix for links in a network based

on a network topology, routing algorithms, and link metric vectors. Contrary to the Examiner's

interpretation, this portion of Benmohamed does not disclose or suggest a setting means for

setting a mathematical programming problem for deriving the multiple point communication

service to permit arbitrary communication within the predetermined range, as required by claim

1. In fact, this portion of Benmohamed does not even relate to a multiple point communication

service to permit arbitrary communication within the predetermined range.

At col. 7, lines 30-35, Benmohamed discloses an equation that may be used to represent a

minimum link capacity capable of meeting all demands of a network. Contrary to the

Examiner's interpretation, col. 7, lines 30-35 of Benmohamed does not disclose or suggest a setting means for setting a mathematical programming problem for deriving a multiple point communication service to permit arbitrary communication within the predetermined range, as required by claim 1. In fact this portion of Benmohamed recites an equation that can represent a minimum link capacity capable of meeting all demands for communication services. This minimum link capacity equation has nothing to do with a setting means for setting a mathematical programming problem for deriving a multiple point communication service to permit arbitrary communication within the predetermined range, as recited in claim 1.

Benmohamed also does not disclose or suggest optimizing means for solving the mathematical programming problem set by the setting means and obtaining a path for the multiple point communication service, as further recited in claim 1. The Examiner alleges that Benmohamed discloses an optimizing means for solving the mathematical programming problem set by the setting means and obtaining a path for the multiple point communication service. The Examiner relies on Figures 1 and 2 and col. 5, lines 23-33 in support of the above allegation (Office Action, page 4). Applicant disagrees.

Col. 5, lines 23-33, of Benmohamed, recites:

> Third, the design system determines whether the final network design (by optimization processor 18) is obtained (step 206). If not, in step 208, the network topology is perturbed (by optimization processor 18) and the new network cost is evaluated in accordance with steps 202 and 204. This design iteration is then repeated until the final network design is obtained. The results of the final design are output (step 210), e.g., in the form of information displayed to the user of the design system, including: (1) the vector C; (2) the route of each traffic flow f_i; and (3) the corresponding network cost.

This portion of Benmohamed discloses perturbing a network topology if a final network design is not obtained. Contrary to the Examiner's interpretation, this portion of Benmohamed does not

disclose or suggest an optimizing means for solving the mathematical programming problem set

by the setting means and obtaining a path for the multiple point communication service, as

required by claim 1. In fact, this portion of Benmohamed does not even relate to solving a

mathematical programming problem set by the setting means and obtaining a path for the

multiple point communication service.

Since Benmohamed does not disclose the combination of features recited in claim 1, the

35 USC §102(e) rejection of claim 1 is improper. Applicant respectfully requests that the

rejection of claim 1 under 35 USC §102(e) based on Benmohamed be reconsidered and

withdrawn. Claim 2 depends from claim 1 and is allowable for at least the reasons given above

in connection with claim 1.

Independent claim 5 includes a communication network designing method for multiple

point communication service for permitting arbitrary communication within a predetermined

range by providing traffic flowing in from an ingress node through which data flows in from an

other network and traffic flowing out from an egress node through which data is fed to the other

network that includes setting a mathematical programming problem for deriving the multiple

point communication service to provide arbitrary communication within the predetermined

range; solving the mathematical programming problem set by the setting; and obtaining a path

for the multiple point communication service. Benmohamed does not disclose or suggest at least

one of these features.

For example, Benmohamed does not disclose or suggest setting a mathematical

programming problem for deriving the multiple point communication service to provide arbitrary

communication within the predetermined range, as required by claim 5.

The Examiner alleges that Benmohamed discloses the above feature at Figure 2, col. 5, lines 12-23, Figure 3, and col. 12, lines 38-53 (Office Action, page 5). Applicant disagrees.

As previously discussed in connection with the rejection of claim 1, Figure 2 illustrates a general design algorithm and col. 5, lines 12-23 describes a technique for computing a traffic matrix for links in a network based on a network topology, routing algorithms, and link metric vectors. These portions of Benmohamed do not disclose or suggest setting a mathematical programming problem for deriving the multiple point communication service to provide arbitrary communication within the predetermined range, as required by claim 5.

Figure 3 of Benmohamed illustrates a technique for computing a worst case link capacity requirement and col. 12, lines 38-53 recites:

> Referring to FIG. 3, a method 300 of computing FIFO/RED-based worst-case link capacity requirements according to the invention is shown. It is to be understood that the notation c denotes the link capacity taking into account only the TCP traffic, while C denotes the link capacity taking into account both TCP and UDP traffic. Accordingly, as is evident from the terms in the equations, the first addition term is the link capacity requirement for TDP traffic and the second addition term is the link capacity requirement for UDP traffic. Further, it is to be appreciated that such computation is performed by the worst-case link capacity requirements processor 14 (FIG. 1) based on input from the routing processor 12 and the user. Accordingly, such design methodology provides the user of the system 10 with a computation, based on particular input specifications, of link capacity requirements on a link by link basis.

This portion of Benmohamed describes the technique of computing a worst case link capacity requirement that is illustrated in Figure 3. Contrary to the Examiner's allegation, this portion of Benmohamed does not disclose or suggest setting a mathematical programming problem for deriving the multiple point communication service to provide arbitrary communication within the predetermined range, as required by claim 5. In fact these portions of Benmohamed do not have anything to do with setting a mathematical programming problem for deriving the multiple

point communication service to provide arbitrary communication within the predetermined

range.

Since Benmohamed does not disclose the combination of features recited in claim 5, the

35 USC §102(e) rejection of claim 5 is improper. Applicant respectfully requests that the

rejection of claim 5 under 35 USC §102(e) based on Benmohamed be reconsidered and

withdrawn. Claim 6 depends from claim 5 and is allowable for at least the reasons given above

in connection with claim 5.

Independent claim 9 recites a storage medium storing a communication network design

control program for designing a communication network for multiple point communication

service for permitting arbitrary communication within a predetermined range by providing traffic

flowing in from an ingress node through which data flows in from an other network and traffic

flowing out from an egress node through which data is fed to the other network, the

communication network design control program including setting a mathematical programming

problem for deriving the multiple point communication service to provide arbitrary

communication within the predetermined range; solving the mathematical programming problem

set in the setting step; and obtaining a path for the multiple point communication service.

Benmohamed does not disclose or suggest at least one of these features.

The Examiner alleges that Benmohamed discloses features of claim 9 at Figure 2, col. 5,

lines 12-23, Figure 3, and col. 12, lines 38-53. These portions of Benmohamed were previously

discussed in connection with the rejections of claims 1 and 5. The features of claim 9 are similar

to the features of claims 1 and 5. Since these portions of Benmohamed do not disclose or

suggest the features of claims 1 and 5, these portions of Benmohamed do not disclose or suggest

the features of claim 9.

Since Benmohamed does not disclose the combination of features recited in claim 9, the 35 USC §102(e) rejection of claim 9 is improper. Applicant respectfully requests that the rejection of claim 9 under 35 USC §102(e) based on Benmohamed be reconsidered and withdrawn.

Claim 10 is directed to a storage medium that performs operations for deriving the path for the multiple point communication service on the basis of a preliminarily set optimization standard. Benmohamed does not disclose or suggest this feature. The Examiner relies on col. 4, lines 21-45 of Benmohamed for teaching the features of claim 10 (Office Action, page 7).

Col. 4, lines 21-45 of Benmohamed discloses equations used in an IP network design system. In particular, this portion of Benmohamed discusses the representation of an initial backbone network topology, a mileage vector that can be used as an input to the system, and parameters used in conjunction with equations that are part of the design system. This portion of Benmohamed does not disclose or suggest deriving the path for the multiple point communication service on the basis of a preliminarily set optimization standard, as required by claim 10.

Since Benmohamed does not disclose the combination of features recited in claim 10, the 35 USC §102(e) rejection of claim 10 is improper. Applicant respectfully requests that the rejection of claim 10 under 35 USC §102(e) based on Benmohamed be reconsidered and withdrawn.

<center>35 USC §103 Rejections</center>

Claims 13 and 14 are rejected under 35 USC §103(a) as allegedly being unpatentable

over Benmohamed as applied to claims 1, 2, 5, 6, 9 and 10 above, in view of Debey.

A proper rejection under 35 USC §103 requires that three basic criteria are met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim features. Furthermore, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure (M.P.E.P. 2143.03). Benmohamed and Debey alone, or in any reasonable combination, do not disclose or suggest the features of claims 13 and 14.

Claim 13 is directed to a transmission medium transmitting a communication network design control program for designing a communication network for multiple point communication service for permitting arbitrary communication within a predetermined range by providing traffic flowing in from an ingress node through which data flows in from an other network and traffic flows out from an egress node through which data is fed to the other network, the communication network design control program including setting a mathematical programming problem for deriving the multiple point communication service to provide arbitrary communication within the predetermined range; solving the mathematical programming problem set in the setting step; and obtaining a path for the multiple point communication service. Benmohamed and Debey, alone or in any reasonable combination, do not disclose or suggest at least one of these features.

For example, Benmohamed and Debey do not disclose or suggest setting a mathematical

programming problem for deriving the multiple point communication service to provide arbitrary

communication within the predetermined range, as required by claim 13.

As previously discussed in connection with the rejection of claims 1, 5 and 9,

Benmohamed does not disclose or suggest setting a mathematical programming problem for

deriving the multiple point communication service to provide arbitrary communication within

the predetermined range. Debey does not cure at least this deficiency associated with

Benmohamed. Therefore, the combination of Benmohamed and Debey do not support a valid 35

USC §103(a) rejection of claim 13.

Applicant respectfully requests that the rejection of claim 13 under 35 USC §103(a)

based on Benmohamed and Debey be reconsidered and withdrawn. Claim 14 depends from

claim 13 and is allowable for at least the reasons given above in connection with claim 13.

CONCLUSION

In view of the foregoing amendment and remarks, Applicant respectfully requests the Examiner's reconsideration of this application, and the timely allowance of the pending claims. All claims are believed allowable in view of this amendment.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,

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